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Update of 9 Mil Spec 9958003-04 for Mechanical Shock

Presented to IMOG

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Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the United States Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.

Outline

- A Brief History of the Document
  - Last known Copy is from March 1992
- Motivation for the rewrite
  - Why it needs to be updated
- Who has a Stake in the document?
- Briefly go through some changes that have been implented
- Get Ideas From Others and Open Community
  - Scheduled to have a working group meeting tomorrow
- This is just the next step – we need to keep the momentum going!!!!

History of the 9 Mil Spec

- What is the document used for and who uses it?
  - Scope - Governs single pulse mechanical shock testing of components within DOE complex and by contractors to DOE
  - Use at SNL is for “Production” Testing, i.e. parts that are accepted or rejected by NNSA
  - Increasingly, we are asked by other customers for some sort of quality control documents
  - Requirements for:
    - Instrumentation
    - Calibration
    - Equipment Capability
    - Test Methods
- When was it created and who maintains it?
  - Last updated by SNL in 1992, Prior to that – No change history or original author
  - The update in 1992 was minimal, and motivated towards helping contractors meet requirements (N. Davie)

Motivation for Updating, Just to Name a Few

- Data Systems and Test Instrumentation has improved dramatically in the last 15 years
  - Requirements for “Fidelity Check” and DAS accuracy need to reflect modern technology. Previous technology addressed with this document was Oscilloscope.
  - Requirements are easily met and do not add value to the lab
- Document does not address test techniques other than single pulse
  - Resonant plate and beam tests are becoming more common at SNL, and have recently been incorporated into “Production” testing. This is also a possibility with KCP parts.

Constraints for Updating

- There are many organizations that have a stake in the 9 mil specification
  - SNL, NM
  - SNL, CA???
  - KCP
  - Any contractor to DOE (PacSci, Each Pitcher, etc.)
  - Others?

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Proposed Updates and Sticking Points

- Changed Calibration cycle from six to twelve months
  - Is this a problem with anyone?
- Eliminated language that describes accelerometer calibration (either piezoresistive or piezoelectric)
  - Will reference calibration lab documents
- What to do about time of use calibration?
  - Old document recommended doing this anytime gain is adjusted, overnight, etc, etc
- Do we need to distinguish between analog and digital equipment?
- A need to define “high frequency contamination” in a drop table type environment
- Does not address digital filtering, SRS calculations, or any other post processing routines

Open to Suggestions???

- What SNL Wants:
  - Update to reflect current data systems
  - Update to calibration and fidelity check sections
  - Addition of Resonant Plate/Beam testing
  - Form a committee of interested parties to rewrite the specification.